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REMARKS

Claims 15 and 16 were objected under 37 CFR 1.75(c). The claims are corrected herein to make them not multiply dependent.

Claims 22 and 23 are canceled because, according to the Examiner, they are directed to a different invention. In order to expedite prosecution, claims 1 and 19 are amended to overcome the rejection based on art, by incorporating the limitations of objected claims 3 and 20, which are canceled herein. The rejections of the remaining claims are overcome by appropriate amendment to the claims, or traversed as explained by the remarks below.

In item 2 of the Detailed Remarks the Examiner noted a number of informalities in the claims. All of the Examiner's suggestions are implemented herein, except those that related to claims 7 and 10, with which applicant respectfully disagrees.

Claims 2-6, 8-14, 17, 20, and 21 were rejected under 35 USC 112, second paragraph because, according to the Examiner, variables "x, N, F, n, k, m, a_{im}, a_{mj} etc" lack antecedent basis. Applicant respectfully traverses.

When something is referenced for the first time, there is no lack of antecedent basis, *unless* that something is preceded by a term such as "the" or "said," which would indicate that a reference is being made to something that was mentioned earlier. Use of such a preceding term creates a lack of clarity, and that is a violation of 35 USC 112, second paragraph. In the case at hand, however, none of the variables are first presented in the claims with a preceding word that might suggest that a reference is being made to something that was identified earlier and, therefore, there is no confusion and no violation of 35 USC 112, second paragraph.

The converse, that of referring to the same thing more than once without making it clear whether the second reference is, or is not, to the something that was referred to earlier also creates confusion; but that is not a lack of antecedence problem, and it is not what the Examiner is asserting.

Nevertheless, it should be pointed out that when it comes to use of variables, skilled artisans read sentences *with certain established understandings*. When encountering a sentence such as "a multi-input switch where input *j* is..." there is no need to additionally define variable *j* because the reader knows that reference is being made to

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the j^{th} input of the switch, where variable j can take on any integer value. When later in a claim a reference is made to "input j ," it is known that a reference is again made to the j^{th} input of the switch, and there is no need to say said input j , or the input j . In this case, there is no confusion, and certainly there is no "antecedence problem" from lack of the term "said" in connection with any of the variables found in the claims.

It may be noted also that even if, for some strange reason, a reader would not recognize that a running variable j that refers to a switch input is an integer, it is still not a question of claim clarity but, rather, a question of breadth, and the Examiner is free to apply art, if art is found that anticipates or renders the claim obvious unless the claim is amended to limit the variable to integer values.

Considered more generally, it is respectfully submitted that a "proper antecedent basis" -- according to some test that determines where there is a "proper" basis -- is not a requirement of 35 USC 112, and a violation of 35 USC 112, second paragraph, does not occur simply because a rigid application of some test regarding "antecedent basis" fails. Although, typically, when something is preceded by "the" or "said" and that something was not previously mentioned, a lack of a proper antecedent basis exists, that is not always the case. To illustrate, when a switch is defined to have inputs, and thus both the switch and the inputs of the switch have a proper antecedent basis, no one would ever be confused by the phrase "the number of inputs of the switch is 4" even though, strictly speaking, the word "number" has not been previously presented. When no one is confused, there is no violation of 35 USC 112.

The above notwithstanding, a number of amendments to the claims are made herein to enhance clarity of the claims.

Addressing the rejected claims, it is noted that claim 2 includes no variable designations.

Amended claim 1 (incorporating the limitations of claim 3) mentions variables i , N , k , and p for the first time. Though it is not always necessary to further define a variable when it is first introduced, in the case of amended claim 1 variable i is associated with inputs of the switch, N is the number of inputs of the switch, k is associated with time slots, and p is associated with selections made. As for variable x , the formulation presented in the original claim 3 is in accord with a standard approach for defining an

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operator. However, since it confused the Examiner, the dummy variable is removed from the amended claim 1.

Claim 4 includes a number of variables, just as amended claim 1 does, and for the reasons expressed above it is believed that none of the variables mentioned in claim 4 present an antecedence problem.

Claims 5, 6, 9, and 10 do employ a variable " F " and, for sake of clarity, these claims are amended to define the variable more explicitly. It is noted in connection with claim 10 that variables m and n are "running" integer variables, and their specification is in accord with standard mathematical notation. As specified by the expression " $m, n=1,2,\dots$ " variable n can take on any positive integer value, and likewise, variable m can take on any positive integer value.

Regarding claims 12 and 20, they specify that output pairs are identified by the variable pair i,j , and Δa_{ij} is specified as the additional time slots per frame of length F . Since the symbol Δ is commonly used to designate an increment, it is clear that variable a_{ij} is the number of time slots, since Δa_{ij} as the additional number of time slots. This comports with the definition for a_{kl} that is found following the equation.

The claims not explicitly mentioned in the above remarks are believed to be proper, and not suffering from a lack of antecedent basis, for the reasons expressed above.

In light of the above amendment and remarks, it is respectfully submitted that amended claims 1-2, 4-19, and 21 overcome all of the objections and rejections. Reconsideration and allowance of these claims are respectfully solicited.

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Respectfully,
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